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GUEST EDITORIAL

POROELASTICITY—MAURICE A. BIOT MEMORIAL ISSUE

The theory of 'poroelasticity' nowadays is no longer a mystery but the foundation of an effective tool in analyzing fluid flow through deformable porous media. The essence of the poroelasticity rests on its intimate coupling between the interacting fluid flow and the porous solid deformation, which sets it apart from all traditional purely diffusive or uniformly deforming phenomena. More importantly, the poroelastic theory has its profound practical implications to interpret field responses in subsurface engineering, hydrogeological science, geophysics, biomedicine, etc. where the intricate effects of the coupled phenomena in the analyzed domains exclude invoking the conventional uncoupled approaches.

Maurice A. Biot (1905–1985) is considered as the founder of the theory of poroelasticity due to his pioneering publications more than half a century ago of the two papers 'Le probleme de la consolidation des matiers argileuse sous une charge', *Ann. Soc. Sci. Bruxelles*, **B55**, 110–113 (1935) and 'General theory of three-dimensional consolidation', *J. Appl. Phys.*, **12**, 155–164 (1941). In memory of M. A. Biot, and to demonstrate the wide spectrum in engineering applications of the theory of poroelasticity, a series of activities have been conducted recently. The first Biot's Conference on Poromechanics was held at Universite Catholique de Louvain in Belgium between September 14–16, 1998. Then the Poroelasticity Maurice A. Biot Memorial Issue was published by the *International Journal of Solids and Structures* in December, 1998 (volume 35, numbers 34–35).

This issue, however, will serve as the continuation of the series of publications in memory of M. A. Biot, with the focused effort to illustrate relevant applications of the poroelasticity theory to new horizons, as demonstrated in the selected eight technical papers. We dedicate this issue to the memory of Maurice A. Biot (1905–1985). Special gratitudes are attributed to the support of those people who value the applications of this delicate theory.

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